Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Realty Corp. C-6, EM2727

Collection Date: November 21, 2006

LDC Report Date: April 4, 2007

Matrix: Water

Parameters: Dissolved Gases

Validation Level: Tier 2 & 3

Laboratory: TestAmerica, Inc./Air Technology Laboratory, Inc.

Sample Delivery Group (SDG): IPK2470/A6112208-01/02

Sample Identification

IWC001_WG112106_0001**
MWC024_WG112106_0001

**Indicates sample underwent Tier 3 review

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Dissolved Gases.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Samples indicated by a double asterisk on the front cover underwent a Tier 3 review. Samples indicated by a single asterisk on the front cover underwent a Tier 2 review. Raw data were not evaluated for the samples reviewed by Tier 2 criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met with the following exceptions:

Sample	Compound	Total Days From Sample Collection Until Analysis	Required Holding Time (in Days) From Sample Collection Until Analysis	Flag	A or P
All samples in SDG IPK2470/A6112208-01/02	All TCL compounds	8	7	J (all detects) UJ (all non-detects)	P

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990 .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 25.0% QC limits.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No dissolved gas contaminants were found in the method blanks.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria on which a Tier 3 review was performed. Raw data were not evaluated for the samples reviewed by Tier 2 criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria on which a Tier 3 review was performed. Raw data were not evaluated for the samples reviewed by Tier 2 criteria.

VII. System Performance

The system performance was acceptable for samples on which a Tier 3 review was performed. Raw data were not evaluated for the samples reviewed by Tier 2 criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Field Blanks

No field blanks were identified in this SDG.

Boeing Realty Corp. C-6, EM2727
Dissolved Gases - Data Qualification Summary - SDG IPK2470/A6112208-01/02

SDG	Sample	Compound	Flag	A or P	Reason
IPK2470/ A6112208-01/02	IWC001_WG112106_0001** MWC024_WG112106_0001	All TCL compounds	J (all detects) UJ (all non-detects)	P	Technical holding times

Boeing Realty Corp. C-6, EM2727
Dissolved Gases - Laboratory Blank Data Qualification Summary - SDG IPK2470/A6112208-01/02

No Sample Data Qualified in this SDG

Client: TestAmerica
Attn: Michele Chamberlin

Client's Project: IPK2470
Date Received: 11/22/2006
Matrix: Water
Units: ug/L

Dissolved Gases by EPA Procedure RSKSOP-175

TW C001 MW C024 - WG12006-0001

Lab No.:		A6112208-01		A6112208-02							
Client Sample I.D.:		IPK2470-07		IPK2470-09							
Date Sampled:		11/21/2006		11/21/2006							
Date Analyzed:		11/29/2006		11/29/2006							
Analyst Initials:		DT		DT							
Data File:		29nov013		29nov014							
QC Batch:		061129GC8A1		061129GC8A1							
Dilution Factor:		1.0		1.0							
ANALYTE	PQL	RL	Results	RL	Results						
Methane	1.0	1.0	9.5 J	1.0	1,700	J					
Ethane	2.0	2.0	ND UJ	2.0	ND	UJ					
Ethylene	3.0	3.0	ND ↓	3.0	ND	↓					
Carbon Dioxide	200	200	16,000 J	200	17,000	J					
Nitrogen	1,500	1,500	31,000 ↓	1,500	26,000	↓					

PQL = Practical Quantitation Limit
ND = Not Detected (Below RL)
RL = PQL X Dilution Factor

Reviewed/Approved By: _____ Date: 12-4-06
Mark J. Johnson
Operations Manager

The cover letter is an integral part of this analytical report.

MJ 12/4/06

LDC #: 16470A51a

VALIDATION COMPLETENESS WORKSHEET

Tier 2/3

Date: 3/30/07

SDG #: IPK2470/A6112208-01/02

Page: 1 of 1

Laboratory: TestAmerica/Air Technology Lab

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC Dissolved Gases (Method RSK-175)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 11/29/06
IIa.	Initial calibration	A	r^2 ≥ 0.990
IIb.	Calibration verification	A	CCV ≤ 25
III.	Blanks	A	
IVa.	Surrogate recovery	N	not required
IVb.	Matrix spike/Matrix spike duplicates	N	client specified
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	A	Not reviewed for Tier II validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Tier II validation.
VII.	System Performance	A	Not reviewed for Tier II validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Tier III validation

Water

1 t	IWC001_WG112106_0001**	11	MB - 11/29/06	21		31	
2 t	MWC024_WG112106_0001	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

LDC #: 16470A51
SDG #: see cover

VALIDATION FINDINGS CHECKLIST

Reviewer:
2nd Reviewer:

Method: ✓ GC ____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.		✓		
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?		✓		
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?	✓			
Did the initial calibration meet the curve fit acceptance criteria?	✓			
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ____%D or ____%R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) < 15%.0 or percent recoveries 85-115%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?			✓	
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			✓	
Was a MS/MSD analyzed every 20 samples of each matrix?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			

LDC #: 16470A51
SDG #: see cover

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.		✓		
XIV. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds idetected in the field duplicates?			✓	
XV. Field blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	

LDC #: 16470A5 1
SDG #: all cooler

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

All circled dates have exceeded the technical holding times.
Y / N N/A Were all cooler temperatures within validation criteria?

METHOD: __GC__ HPLC

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
all	water	no	11/21/06		11/29/06	8	J/UJ/P
				H.T. w/o preservation = 7 days.			

TECHNICAL HOLDING TIME CRITERIA

VOLATILES:
- Water unpreserved: Aromatic within 7 days, non-aromatic within 14 days of sample collection.
- Water preserved: Both within 14 days of sample collection.
- Soils: Both within 14 days of sample collection.

EXTRACTABLES:
- Water: Extracted within 7 days, analyzed within 40 days.
- Soil: Extracted within 14 days, analyzed within 40 days.

LDC# 16470A5'
SDG# see cover

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Rviewer:
2nd Reviewer:

METHOD: RSK-175

Calibration Date	Column/ Detector	Compound	Standard	X	Y	
05/23/06	FID (middle)	methane	Point 1	10	9309	
			Point 2	100	89744	
			Point 3	1000	863867	
			Point 4	5000	4401745	
			Point 5	10000	9597354	
			Point 6			
			Point 7			
			Point 7			
			Point 8			

	Recalculated Result	Result Reported by the Laboratory
Regression Output:		
Constant	0	0
Std Err of Y Est	181942.83552443456	
R Squared	0.99804	0.998417
No. of Observations	5	
Degrees of Freedom	4	
X Coefficient(s)	943.21962676	9.4322E+02
Std Err of Coef.	16.2081064622	

LDC #: 16470A5-1
SDG #: all cover

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC_____HPLC_____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = Initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	ccv 8.16	11/29/07	methane	1000	1198.6	1198.6	19.8	20
2								
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 16470A51
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA Where SSC = Spiked concentration, SA = Spike added, SC = Sample concentration

RPD =(((SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100 LCS = Laboratory Control Sample percent recovery LCSD = Laboratory Control Sample duplicate percent recovery

LCS/LCSD samples: LCS ID

Compound	Spike Added (ug/L)		Sample Conc. (ug/L)	Spike Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	---	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)	6900	6900	0	7694.7	7376.5	111	111.5	106	106.9	4.2	4.2
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 16470A51
SDG #: see cover

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: / GC __ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound in the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. #1 Compound Name Methane

Concentration = _____

$y = 9.4322 \times 10^{2} (X)$

$941667 = 9.4322 \times 10^{2} (X)$

$X = 100.4$

#	Sample ID	Compound	Reported Concentrations	Recalculated Results Concentrations	Qualifications
		gas in HS =	$\frac{(100.4)(55.51)(16.04)(1000)}{(1000)(41300)} =$		2.1645
		gas in liquid =	$\frac{(100.4)(16.04)(1000)(4)}{(1000)(22.4)(36)(\frac{298}{273})} =$		7.318
				total	9.48 ug/L

Comments: _____

SAMPCALew.wpd

BOE-C6-0053085

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: Boeing Realty Corp. C-6, EM2727

Collection Date: November 20, 2006

LDC Report Date: April 4, 2007

Matrix: Water

Parameters: Dissolved Gases

Validation Level: Tier 1

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): IPK2310

Sample Identification

MWC015_WG112006_0001

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per Method RSK-175 for Dissolved Gases.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration data were not reviewed for Tier 1.

b. Calibration Verification

Calibration verification data were not reviewed for Tier 1.

III. Blanks

Method blanks were performed at the required frequency. No dissolved gas contaminants were found in the method blanks.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Not required by the method.

b. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c. Laboratory Control Samples

Laboratory control samples were analyzed at the required frequency. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Field Blanks

No field blanks were identified in this SDG.

Boeing Realty Corp. C-6, EM2727
Dissolved Gases - Data Qualification Summary - SDG IPK2310

No Sample Data Qualified in this SDG

Boeing Realty Corp. C-6, EM2727
Dissolved Gases - Laboratory Blank Data Qualification Summary - SDG IPK2310

No Sample Data Qualified in this SDG

TestAmerica
ANALYTICAL TESTING CORPORATION

TAIT Environmental/Boeing	Project ID: Boeing C-6 Torrance	
701 N. Parkcenter Drive	EM2727	Sampled: 11/20/06
Santa Ana, CA 92705	Report Number: IPK2310	Received: 11/20/06
Attention: Mehmet Pehlivan		

RSK175 Dissolved Gases in Water

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IPK2310-05 (MWC015_WG112006_0001 - Water) - cont.									
Reporting Units: ug/L									
Methane	RSK-175	061129GC8A	0.39	1.0	**10**	1	11/29/06	11/29/06	
Ethane	RSK-175	061129GC8A	0.50	2.0	ND	1	11/29/06	11/29/06	
Ethylene	RSK-175	061129GC8A	0.33	3.0	ND	1	11/29/06	11/29/06	
Nitrogen	RSK-175	061129GC8A	222	1500	**25000**	1	11/29/06	11/29/06	

TestAmerica - Irvine, CA
Nicholas Marz For Michele Chamberlin
Project Manager

N 061207

LDC #: 16470B51a **VALIDATION COMPLETENESS WORKSHEET** Date: 3/30/07
SDG #: IPK2310 Tier 1 Page: 1 of 1
Laboratory: TestAmerica Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC Dissolved Gases (Method RSK-175)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 11/20/06
IIa.	Initial calibration	N	
IIb.	Calibration verification	N	
III.	Blanks	A	
IVa.	Surrogate recovery	N	not required
IVb.	Matrix spike/Matrix spike duplicates	N	client specified
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: waters

1	MWC015_WG112006_0001	11	MB - 11/29/06	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: